DOCUMENT RESUME

ED 390 319 HE 028 789

AUTHOR House, J. Daniel
TITLE College Grade Outcomes and Attrition: An Exploratory Study of Noncognitive Variables and Academic Background as Predictors.
PUB DATE Nov 94
NOTE 50p.; Paper presented at the Annual Meeting of the Illinois Association for Institutional Research (Lake Shelbyville, IL, November 3-4, 1994).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Achievement; *Academic Persistence; Class Rank; *College Freshmen; *Grade Point Average; *Grade Prediction; Higher Education; Longitudinal Studies; Parent Background; *Predictor Variables; Racial Differences; Recognition (Psychology); Scores; Sex Differences; Social Attitudes; Standardized Tests; Student Characteristics
IDENTIFIERS ACT Assessment

ABSTRACT

This study investigated the efficacy of noncognitive variables and academic background for the prediction of college grade performance and persistence. A total of 7,377 new first-year college students participated in the study, completing demographic questionnaires at the start of the school year. Data were also collected on American College Test (ACT) composite scores, high school rank, cumulative grade point average (GPA) after 1, 2, and 4 years in college, and enrollment status after 2 and 4 years in college. The study found that the combination of ACT composite scores and high school class rank alone explained 26 percent of the variance in college GPA after 1 year and 26.5 percent of the variance after 2 years. This variance effect was more pronounced for white students than for Hispanic, Asian, and black students. The study also found that students with higher financial and social goals exhibited, on average, lower grades and persistence rates than students with lower financial and social goals. The effects of ethnicity, gender, parent educational background, desire for recognition, and achievement expectancies are also considered. (Contains 39 references.) (MDM)

ED 390 319

College Grade Outcomes and Attrition: An Exploratory Study of Noncognitive Variables and Academic Background as Predictors

J. Daniel House

Northern Illinois University

PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

J. Daniel House

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Paper presented at the Illinois Association for Institutional Research Annual Meeting, Lake Shelbyville, Illinois, November 3-4, 1994

BEST COPY AVAILABLE

Abstract

There is a continuing interest in the identification of effective predictors of academic achievement. The purpose of this study was to investigate the efficacy of noncognitive variables and academic background for the prediction of college grade performance and persistence. Students included in this study began as new freshmen during three consecutive fall semesters (N = 7,377). There were several significant findings from this study and these results provide a numer of direction for further research.

There is a continuing interest in the identification of effective predictors of academic achievement. Relationships between traditional measures, such as admissions test scores or high school achievement, and subsequent college achievement have been investigated. More recently, research efforts have been directed toward assessing the efficacy of student attitudes as predictors of academic achievement. Student characteristics such as academic self-concept, achievement expectancies, and goals have been referred to as noncognitive variables (Messick, 1979). An important consideration in conducting research on student achievement is the choice of criterion measures of achievement; two measures of student achievement that have been commonly investigated are grade performance and persistence (Hartnett & Willingham, 1980). The purpose of this discussion is to review the findings of previous research on the efficacy of academic background and noncognitive variables for the prediction of college students' grade performance and attrition.

There have been numerous studies of the predictive relationship between admissions test scores and subsequent achievement in college. Considering cumulative grade point average (GPA) as the criterion measure, American College Testing Program (ACT) scores have been found to be significant predictors of student achievement (Sawyer & Maxey, 1981). Similarly, ACT scores have been shown to be significant predictors of student grade performance in specific college courses such as mathematics (Bridgeman, 1982), chemistry (House, 1992a), and psychology (Zimmerman,

Wise, & South, 1974). Finally, Scholastic Aptitude Test (SAT) scores are also significant predictors of grade performance in specific college courses (Baron & Norman, 1992).

A more limited number of studies have examined ethnic group differences in the prediction of college achievement from admissions test scores. Maxey and Sawyer (1981) found that ACT scores predicted first-year college grades more accurately for White students than for Hispanic and African-American students. The results of a more recent study also suggest that the predictive validity of admissions test scores for cumulative GPA differs for White and African-American students (D'Augelli & Hershberger, 1992). Finally, recent research indicated that Hispanic students with lower SAT scores than White students subsequently earned college grades that were equivalent, suggesting that admissions test scores may not predict similarly for White and Hispanic students (Pearson, 1993) while another study indicates that SAT scores are significant predictors of Hispanic students' grade performance (Fuentes & Sedlacek, 1994).

Findings from recent research indicate that students' non-cognitive characteristics are significant predictors of subsequent college achievement. For example, academic self-concept has been shown to be significantly related to the grade performance of college students in specific courses (Wheat, Tunnell, & Munday, 1991; Wilhite, 1990). Gerardi (1990) found a significant relationship between academic self-concept and the subsequent grade performance of minority engineering students.

Students' expectancies of their academic performance have also been found to be significant predictors of college grade performance. Achievement expectancies have been shown to predict grades in general education courses (Gordon, 1989), exam grades in general education courses (Holen & Newhouse, 1976), and overall grade performance (House, 1993). In addition, the significant relationship between achievement expectancies and grade performance has been found even after controlling for the effects of variables such as student goals, self-confidence, and prior achievement (Vollmer, 1986).

With regard to student persistence in college, several studies have examined the efficacy of noncognitive variables as predictors of student attrition and conflicting results have been produced (House, 1992b). For example, Pascarella (1985) failed to find a significant relationship between academic self-concept and subsequent bachelor's degree completion while Ethington (1990) failed to find a significant relationship between achievement expectancies and subsequent degree completion. However, a recent study suggests that students who failed to persist in college did not have clear academic goals and were less committed to college persistence (Gerdes & Mallinckrodt, 1994). Finally, other noncognitive variables such as family characteristics were predictive of college persistence in a study from the High School and Beyond (HSB) longintudinal survey (Stage & Rushin, 1993). Consequently, further research is needed to examine the relationship between noncognitive variables and

college attrition.

Several studies have examined the relationship between non-cognitive variables and the college persistence of minority students. There is a continuing interest in the enrollment of minority students in higher education (Carroll, 1988; Smith, 1991) and in the identification of predictors of minority student achievement in college. Trippi and Stewart (1989) found that African-American students' expected grade performance was significantly related to their persistence in college for two years. Nora (1987) reported that parental education was related to the persistence of Hispanic students while Donovan (1984) found that high admissions test scores and higher academic achievement in high school were related to the college persistence of African-American students. Tracey and Sedlacek (1987a) found that initial attitudes were predictive of college graduation for both African-American and White students. Arbona and Novy (1990), however, found that minority students' expectancies were not significantly related to enrollment status for the second year of college while expectancies were significantly related to the persistence of White students. Similarly, recent findings indicate that Asian and African-American students who persisted in college showed higher levels of feeling alienated on campus than did Hispanic and White students who persisted (Bennett & Okinaka, 1990). Tracey and Sedlacek (1987b) also indicated that noncognitive variables were more significant predictors of college persistence for African-American students

than for White students. Finally, it has been noted that research is needed to determine the relationship between non-cognitive variables and the academic persistence of Native American students (Steward, 1993).

The purpose of this study was to investigate the efficacy of noncognitive variables and academic background for the prediction of college grade performance and persistence. Because numerous studies have failed to examine either gender or ethnic group differences in these relationships (Mallette & Cabrera, 1991), this study was designed to examine these relationships as a function of student gender and ethnic group. This study was designed to extend the findings of previous studies that have investigated either academic background variables or noncognitive variables as predictors by evaluating the relative contributions of each for the prediction of student performance.

Methods

Students

Students included in this study began as new freshmen during three consecutive fall semesters; in this sample, there were 7,377 students who had completed the measures used in this study. In the sample, there were 3,253 male students and 4,124 female students. When analyzed by student ethnic group, there were 174 Hispanic students, 232 Asian students, 453 African-American students, 12 Native American students, 6,487 White students, and 19 students without ethnic group information available.

Measures

During an on-campus orientation period prior to the start of the fall semester of their freshmen year, all students were requested to complete the Cooperative Institutional Research Program Freshmen Survey (CIRP, 1987). On this survey, there were several items that measured student attitudes, family characteristics, and high school background. From these items, seven noncognitive variables were constructed: achievement expectancies, academic self-concept, financial goals, social goals, desire for recognition, parental education, and high school curriculum. The specific items that comprised these variables are shown in Table A. In addition, data were collected for two academic background variables: ACT Composite scores and high school class percentile rank. Finally, there were five dependent measures of academic performance that were examined in this study. Three dependent variables were measures of grade performance: cumulative grade point average (GPA) after one, two,

Table A

Variable Definitions

Parental Education	Sum of mother's and father's education (six levels each from 'grammar school or less' to 'postgraduate degree').
High School Curriculum	Sum of high school units taken in six fields: English, Mathematics, Foreign Languages, Physical Sciences, Biological Sciences, and History/American Government.
Financial Goals	Sum of student's ratings of the importance of becoming an expert in finance and commerce, being very well off financially, and being successful in own business.
Social Goals	Sum of student's ratings of the importance of promoting racial understanding, helping others in difficulty, influencing social values, influencing the political structure, taking part in community action, and promoting environmental cleanup.
Academic Self-Concept	Sum of student's self-ratings of overall academic ability, drive to achieve, mathematical ability, writing ability, and self-confiddence in intellectual ability.
Achievement Expectancies	Sum of student's self-ratings of the probability of graduating with honors, making at least a B average, get bachelor's degree, and transformed ratings of expectations of failing one or more courses in college, needing extra time to graduate, and getting tutoring assistance.
Desire for Recognition	Sum of student's ratings of the importance of becoming an authority in my field and obtaining recognition from my colleagues for contributions in my special field.

and four years in college. Two dependent measures were related to student attrition: students' enrollment status after two and four years in college.

Procedure

Several procedures were used to analyze the data from this study. First, correlation coefficients were computed to examine the relationships between each of the predictor variables. Correlation coefficients were then computed to investigate the relationships between each of the predictor variables and subsequent grade performance and persistence. Correlations were computed for the entire sample and separately for male and female students and separately for each student ethnic group.

Ordinary least-squares multiple regression procedures were used to investigate the relative contribution of each predictor variable for predicting cumulative grade performance after one, two, and four years. These multiple regression analyses were done for the entire sample, separately for male and female students, and separately for each student ethnic group. These analysis investigated the relative ordering of noncognitive variables and academic background for explaining college grade achievement.

Analyses were conducted to investigate the efficacy of noncognitive variables and academic background variables as predictors of college attrition. Stepwise logistic regression procedures were used to determine the relative ordering of each predictor variable toward the explanation of college attrition. Logistic regression

is particularly suited to the analysis of binary outcomes such as enrolled/not enrolled (O'Gorman & Woolson, 1991). In logistic regression, the relationship between a binary outcome measure and a set of predictor variables (either categorical or continuous) is examined. Because it is a stepwise procedure, logistic regression provides an analysis of the relative ordering of each predictor variable toward the explanation of the outcome measure (Afifi, 1990).

A number of logistic regression analyses were performed. Considering enrollment status after two years, logistic regression analyses were conducted using the entire set of predictor variables for the entire sample, separately for male and female students, and separately for each student ethnic group. Similar procedures were also used to investigate enrollment status after four years; logistic regression analyses were conducted for the entire sample, separately for male and female students, and separately for each student ethnic group. Because of an insufficient number of students, least-squares and logistic regression analyses were not conducted for Native American students.

Results

Considering the entire sample, correlations between each of the predictor variables are presented in Table 1. Several significant correlations were obtained. Significant positive correlations were found for the relationships between ACT Composite scores and achievement expectancies, academic self-concept, and

high school curriculum. Similarly, high school class percentile rank was significantly correlated with achievement expectancies, academic self-concept, high school curriculum, and ACT Composite scores. Two noncognitive variables, however, showed significant negative correlations with ACT Composite scores and high school class percentile rank. Students' financial goals and social goals were negatively correlated with their ACT Composite scores and high school class ranks. In addition, students' desire for recognition scores were significantly negatively correlated with ACT Composite scores. These findings indicate that students who entered college with high financial goals, high social goals, and a strong desire for recognition had lower entering academic skills as measured by ACT Composite scores and high school class percentile ranks.

Correlations between each predictor variable and all five measures of academic performance for the entire sample are presented in Table 2. Both measures of academic background (ACT Composite scores and high school class percentile rank) were significantly correlated with cumulative GPA after one, two, and four years. In addition, several noncognitive variables (academic self-concept, achievement expectancies, high school curriculum, and parental education) produced significant positive correlations with each GPA measure. With regard to persistence, both ACT Composite scores and high school class percentile ranks were significantly correlated with enrollment status after two and four years. In addition, academic self-concept, achievement expectancies, high school curriculum, and parental education were signif-

icantly positively correlated with both measures of persistence. However, students' financial goals, social goals, and desire for recognition were significantly negatively correlated with each measure of persistence.

Correlations between each predictor variable and each of the five measures of academic performance are summarized for male students in Table 3 and for female students in Table 4. For both male and female students, ACT Composite scores and high school class percentile ranks were significantly correlated with each measure of grade performance and persistence. For grade performance, high school curriculum was significantly correlated with each GPA measure for both male and female students. Similarly, achievement expectancies and academic self-concept were significantly correlated with each academic performance measure for both male and female students. Finally, financial goals and social goals were negatively correlated with grade performance and persistence for both male and female students. This finding indicates that students with high financial and social goals tended to show lower grades and lower persistence rates.

Correlations between each predictor variable and each measure of academic performance are summarized by student ethnic group in Tables 5 through 9. Results for Native American students are shown in Table 5. For these students, desire for recognition was significantly correlated with cumulative GPA after one year while high school curriculum was significantly correlated with cumulative GPA after two years. Considering Hispanic students (Table 6), both

measures of academic background (ACT Composite scores and high school class percentile rank) were significantly correlated with each measure of grade performance and persistence. In addition, achievement expectancies were a significant predictor of GPA after one year while academic self-concept was a significant predictor of cumulative GPA after four years. Finally, high school curriculum was a significant predictor of persistence in college for four years for Hispanic students.

With regard to Asian students (Table 7), high school class percentile rank was a significant predictor of each measure of grade performance and persistence; ACT Composite scores were significant predictors of cumulative GPA after one and two years and of persistence after four years. Considering noncognitive variables, academic self-concept was significantly correlated with each measure of grade performance and with persistence for four years. Still considering Asian students, it was also found that achievement expectancies were significant predictor of cumulative GPA after one year. Finally, for the Asian students in this study, significant negative correlations were found for the relationships between social goals and cumulative GPA after two and four years.

Correlations between each predictor variable and each measure of academic performance for African-American students are presented in Table 8. Both measures of academic background (ACT Composite scores and high school class percentile rank) were significant predictors of each measure of grade performance and persistence. One noncognitive variable (academic self-concept) was also a sig-

nificant predictor of all five measures of achievement. In addition, high school curriculum was a significant predictor of persistence for two years in college while parental education was significantly correlated with African-American students' persistence in college for two and four years.

Correlations between each predictor variable and each measure of academic performance for White students are summarized in Table 9. With regard to grade performance, ACT Composite scores and high school class percentile ranks were significant predictors of cumulative GPA after one, two, and four years. In addition, three non-cognitive variables (achievement expectancies, academic self-concept, and high school curriculum) produced significant positive correlations with each grade measure while parental education was significantly correlated with cumulative GPA after one and two years. Considering persistence, five variables (ACT Composite scores, high school class percentile rank, high school curriculum, parental education, and academic self-concept) produced significant positive correlations with both measures of persistence while achievement expectancies were significantly correlated with persistence in college for two years. Finally, two variables (financial goals and desire for recognition) showed significant negative correlations with both measures of persistence; financial goals also showed significant negative correlations with each measure of grade performance.

The results of the multiple regression analysis of cumulative GPA after one year for the entire sample and by student gender are

presented in Table 10. For the entire sample, the two measures of academic background entered the regression equation as the two most significant predictor variables. In addition, three noncognitive variables (parental education, academic self-concept, and financial goals) also significantly entered the regression equation. When analyzed by student gender, similar results were obtained. For both male and female students, high school percentile rank and ACT Composite scores were the first two variables to enter the regression equations while the same three noncognitive variables (academic self-concept, financial goals, and parental education) also significantly entered the regression equations. For the entire sample, the overall regression equation was significant ($F(9, 7325) = 313.16$, $p = .0001$) and explained 27.8% of the variance in cumulative GPA after one year. For male students, the overall regression equation was significant ($F(9, 3222) = 132.76$, $p = .0001$) and explained 27.1% of the variance while, for female students, the overall regression equation was also significant ($F(9, 4093) = 176.28$, $p = .0001$) and explained 27.9% of the variance in cumulative GPA after one year.

Results from the multiple regression analysis of cumulative GPA after two years for the entire sample and by student gender are presented in Table 11. High school class percentile rank and ACT Composite scores were the first and second variables to enter the regression equations for the entire sample and for male and female students. For the entire sample, five noncognitive variables (financial goals, academic self-concept, parental education,

social goals, and high school curriculum) also significantly entered the regression equation; the same five noncognitive variables also significantly entered the regression equation for female students. For male students, only three noncognitive variables (academic self-concept, financial goals, and parental education) significantly entered the regression equation. The overall regression equation for the entire sample was significant ($F(9, 5639) = 252.84$, $p = .0001$) and explained 28.8% of the variance in cumulative GPA after two years. When analyzed by student gender, the overall regression equation for male students was significant ($F(9, 2431) = 84.73$, $p = .0001$) and explained 23.9% of the variance. The overall regression equation for female students was also significant ($F(9, 3198) = 169.28$, $p = .0001$) and explained 32.3% of the variance.

Results from the multiple regression analysis of cumulative GPA after four years for the entire sample and by student gender are summarized in Table 12. Findings similar to those obtained for grade performance after one and two years were found. High school class percentile rank entered the regression equations for the entire sample and for male and female students first as the most significant predictor variable. For the entire sample, the overall regression equation was significant ($F(9, 4711) = 187.86$, $p = .0001$) and explained 26.4% of the variance in college GPA after four years. For male students, the overall regression equation was significant ($F(9, 2017) = 58.59$, $p = .0001$) and explained 20.7% of the variance while, for female students, the overall regression

equation was also significant ($F(9, 2684) = 124.63$, $p = .0001$) and explained 29.5% of the variance in cumulative GPA after four years.

Results from the logistic regression analyses of the persistence of the entire sample and by student gender are show in Tables 13 and 14. As was the case for grade performance, high school class percentile rank and ACT Composite scores were generally the two best predictors of persistence for two years (Table 13) and persistence for four years (Table 14). When assessing the persistence of the entire sample for two years, four noncognitive variables (parental education, financial goals, academic self-concept, and achievement expectancies) also significantly entered the logistic regression equation. Again considering the entire sample, the same four noncognitive variables also significantly entered the logistic regression equation for persistence for four years. The overall logistic regression equation for persistence for two years was significant (chi-square = 467.92, df=9, p = .0001) as was the logistic regression equation for persistence for four years (chi-square = 449.64, df = 9, p = .0001). When analyzed by student gender, the regression equations for persistence for two years were significant for male students (chi-square = 278.20, df = 9, p = .0001) and for female students (chi-square = 206.81, df = 9, p = .0001). Similarly, the regression equations for persistence for four years were significant for male students (chi-square = 248.03, df = 9, p = .0001) and for female students (chi-square = 218.67, df = 9, p = .0001).

Findings from the multiple regression analyses of cumulative

GPA after one year for each student ethnic group are summarized in Table 15. For Hispanic and Asian students, only one variable (high school class percentile rank) significantly entered the regression equations. Two variables (high school class percentile rank and academic self-concept) significantly entered the regression equation for African-American students. Interestingly, ACT Composite scores did not significantly enter the regression equations for minority students. For White students, both academic background variables and four noncognitive variables (parental education, academic self-concept, financial goals, and social goals) significantly entered the regression equation. Finally, the overall regression equations were significant for each student ethnic group: for Hispanic students ($F(9, 164) = 3.43$, $p = .0007$), for Asian students ($F(9, 219) = 5.71$, $p = .0001$), for African-American students ($F(9, 442) = 3.79$, $p = .0001$), and for White students ($F(9, 6439) = 290.18$, $p = .0001$).

When cumulative GPA after four semesters was analyzed by student ethnic group (Table 16), different patterns of results emerged. For Hispanic students, the only variable that significantly entered the regression equation was ACT Composite score. For Asian students and African-American students, both measures of academic background significantly entered the regression equation. For White students, the same variables that entered the regression equations significantly for GPA after one year also significantly entered the regression equation for GPA after two years. Finally, the overall regression equations were signif-

icant for each student ethnic group: for Hispanic students ($F(9, 113) = 3.54$, $p = .0001$), for Asian students ($F(9, 155) = 5.57$, $p = .0001$), for African-American students ($F(9, 256) = 4.72$, $p = .0001$), and for White students ($F(9, 5063) = 223.13$, $p = .0001$).

Results from the multiple regression analysis of cumulative GPA after four years for each student ethnic group are summarized in Table 17. For Hispanic students, two noncognitive variables (academic self-concept and financial goals) significantly entered the regression equation while, for Asian students, one noncognitive variable (parental education) and high school class percentile rank significantly entered the regression equation. For African-American students, the two academic background variables were the only two variables to significantly enter the regression equation. For White students, the same variables that were significant previously were also significant in this analysis. As was the case before, the overall regression equations were significant for each student ethnic group: for Hispanic students ($F(9, 82) = 2.16$, $p = .0330$), for Asian students ($F(9, 115) = 5.28$, $p = .0001$), for African-American students ($F(9, 175) = 3.54$, $p = .0005$), and for White students ($F(9, 4293) = 167.54$, $p = .0001$). The percent of variance explained for all three GPA measures for each student ethnic group are shown in Figure 1. As can be seen, these variables explained notably less variance in GPA outcomes for African-American students than was the case for students in other ethnic groups.

Logistic regression analyses were conducted to investigate the prediction of persistence by student ethnic group and those findings are presented in Tables 18 and 19. Considering persistence for two years (Table 18), only one variable (high school class percentile rank) significantly entered the logistic regression equation for Hispanic and Asian students. Conversely, two noncognitive variables (academic self-concept and parental education) significantly entered the regression equation for African-American students. For White students, both academic background variables and three noncognitive variables (parental education, financial goals, and academic self-concept) significantly entered the logistic regression equation. Finally, the overall regression equations for African-American students (chi-square = 28.86, df = 9, p = .0007) and White students (chi-square, = 384.18, df = 9, p = .0001) were significant. However, the regression equation for Hispanic students was not significant (chi-square = 10.49, df = 9, p =.3136) while the regression equation for Asian students was nearly significant (chi-square = 16.60, df = 9, p = .0553).

With respect to student persistence for four years (Table 19), only one academic background variable significantly entered the logistic regression equation for Hispanic students (ACT Composite scores) and for Asian students (high school class percentile rank). For African-American students, two noncognitive variables (academic self-concept and parental education) and one academic background variable (high school class percentile rank) significantly entered the regression equation. For White students, five

variables significantly entered the logistic regression equation: both academic background variables and three nocnognitive variables (parental education, financial goals, and achievement expectancies). The overall regression equation was not significant for either Hispanic students (chi-square = 13.40, df = 9, p = .1454) or for Asian students (chi-square = 15.11, df = 9, p = .0879). However, the overall regression equations were significant for African-American students (chi-square = 25.88, df = 9, p=.0021) and for White students (chi-square = 327.44, df = 9, p = .0001).

Discussion

There were several significant findings from this study. First, the set of predictor variables examined in this study comprised an overall model that was effective for predicting student grade performance. In addition, the combination of ACT Composite scores and high school class percentile rank alone explained 26.0% of the variance in GPA after one year and 26.5% of the variance in GPA after two years. A second interesting finding was that there were some differences between student ethnic groups with regard to which variables were the most effective predictors of subsequent achievement. Yet another finding from this study was that some of the significant predictors (such as financial goals and social goals) actually had negative relationships with achievement outcomes. This pattern was apparently due to the fact that students with high financial and social goals tended to show lower levels of academic prepar-

tion.

One limitation of this study is that only traditional-aged students were included. Recent research has focused on the applicability of recognized models of attrition for adult learners (Ashar & Skenes, 1993). The findings of Ashar and Skenes (1993) suggest that different factors may be related to the persistence of adult students than for traditional-aged students. Consequently, further research is needed to determine of the findings of this study would be replicated for adult learners. A second limitation of this study is that students from only one institution were available for analysis. Further studies that examine students at other types of institutions are needed to evaluate the generalizability of these findings for students at other types of colleges and universities. Finally, there were insufficient numbers of Native American students to allow multiple regression analyses of grade outcomes and attrition. Additional study is needed to investigate the relative ordering of academic background and noncognitive variables for the prediction of college achievement for Native American students.

The results of this study provide a number of directions for further research. First, further study is needed to examine the predictive validity of specific facets of academic self-concept and achievement expectancies for subsequent achievement outcomes. Second, further research is needed to examine which parts of the high school curriculum are most effective for predicting college

achievement. However, these findings provide considerable insight into the efficacy of academic background and noncognitive variables as predictors of student achievement in college.

References

Afifi, A. (1990). *Computer-Aided Multivariate Analysis (Second Edition)*. New York: Van Nostrand Reinhold.

Arbona, C., & Novy, D.M. (1990). Noncognitive dimensions as predictors of college success among Black, Mexican-American, and White students. *Journal of College Student Development, 31*, 415-422.

Ashar, H., & Skenes, R. (1993). Can Tinto's student departure model be applied to nontraditional students? *Adult Education Quarterly, 43*, 90-100.

Baron, J., & Norman, M.F. (1992). SATs, achievement tests, and high school class rank as predictors of college performance. *Educational and Psychological Measurement, 52*, 1047-1055.

Bennett, C., & Okinaka, A.M. (1990). Factors related to persistence among Asian, Black, Hispanic, and White undergraduates at a predominantly White university: Comparison between first and fourth year cohorts. *Urban Review, 22*, 33-60.

Bridgeman, B. (1982). Comparative validity of the College Board Scholastic Aptitude Test-Mathematics and the Descriptive Tests of Mathematics Skills for predicting performance in college mathematics courses. *Educational and Psychological Measurement, 42*, 361-366.

Carroll, C.D. (1988). *College access and persistence among Asian Americans: Findings from the High School and Beyond study*. Paper presented at the American Educational Research Association annual meeting.

Cooperative Institutional Research Project. (1987). *Annual Freshmen Survey*. Los Angeles, CA: Higher Education Research Institute and UCLA Graduate School of Education.

D'Augelli, A.R., & Hershberger, S.L. (1993). African-American undergraduates on a predominantly White campus: Academic factors, social networks, and campus climate. *Journal of Negro Education, 62*, 67-81.

Donovan, R. (1984). Path analysis of a theoretical model of persistence in higher education among low-income Black youth. *Research in Higher Education, 21*, 243-259.

Ethington, C.A. (1990). A psychological model of student persistence. *Research in Higher Education, 31, 279-293*.

Fuentes, J.N., & Sedlacek, W.E. (1994). Predicting the academic success of Hispanic college students using SAT scores. *College Student Journal, 28*, 350-353.

Gerardi, S. (1990). Academic self-concept as a predictor of success among minority and low-socioeconomic status students. *Journal of College Student Development, 31*, 402-407.

Gerdes, H., & Mallinckrodt, B. (1994). Emotional, social, and academic adjustment of college students: A longitudinal study of retention. *Journal of Counseling and Development, 72*, 281-288.

Gordon, R.A. (1989). Intention and expectation measures as predictors of academic performance. *Journal of Applied Social Psychology, 19*, 405-415.

Hartnett, R.T., & Willingham, W.W. (1980). The criterion problem: What measure of success in graduate education? *Applied Psychological Measurement, 4*, 281-291.

Holen, M.C., & Newhouse, R.C. (1976). Student self-prediction of academic achievement. *Journal of Educational Research, 69*, 219-220.

House, J.D. (1992a). *Noncognitive variables as predictors of achievement in introductory college chemistry*. Paper presented at the Illinois Association for Institutional Research annual meeting, Carbondale, Illinois.

House, J.D. (1992b). The relationship between academic self-concept, achievement-related expectancies, and college attrition. *Journal of College Student Development, 33*, 5-10.

House, J.D. (1993). Achievement expectancies as predictors of academic performance. *International Journal of Instructional Media, 20*, 213-223.

Mallette, B.I., & Cabrera, A.F. (1991). Determinants of withdrawal behavior: An exploratory study. *Research in Higher Education, 32*, 179-194.

Maxey, J., & Sawyer, R. (1981). Predictive validity of the ACT Assessment for Afro-American/Black, Mexican-American/Chicano, and Caucasian-American/White students. Iowa City, Iowa: American College Testing Program Research Bulletin No. 81-1.

Messick, S. (1979). Potential uses of noncognitive measurement in education. *Journal of Educational Psychology, 71*, 281-292.

Nora, A. (1987). Determinants of retention among Chicano college students: A structural model. *Research in Higher Education, 26*, 31-59.

O'Gorman, T.W., & Woolson, R.F. (1991). Variable selection to discriminate between two groups: Stepwise logistic regression or discriminant analysis? *American Statistican, 45*, 187-193.

Pascarella, E.T. (1985). Racial differences in factors associated with bachelor's degree completion: A nine-year follow-up. *Research in Higher Education, 23*, 351-373.

Pearson, B.Z. (1993). Predictive validity of the Scholastic Aptitude Test (SAT) for Hispanic bilingual students. *Hispanic Journal of Behavioral Sciences, 15*, 342-356.

Sawyer, R., & Maxey, J. (1981). Some facts about the predictive validity of the ACT Asessment. Iowa City, Iowa: American College Testing Program Research Bulletin No. 81-2.

Smith, A.W. (1991). Personal traits, institutional prestige, racial attitudes, and Black student academic performance in college. In W.R. Allen, E.G. Epps, & N.Z. Haniff (Eds.), *College in Black and White: African American Students in Predominantly White and in Historically Black Public Universities* (pp. 111-126). Albany, NY: State University of New York Press.

Stage, F.K., & Rushin, P.W. (1993). A combined model of student predisposition to college and persistence in college. *Journal of College Student Development, 34*, 276-281.

Steward, R.J. (1993). Two faces of academic success: Case studies of American Indians on a predominantly Anglo university campus. *Journal of College Student Development, 34*, 191-196.

Tracey, T.J., & Sedlacek, W.E. (1987a). Prediction of college graduation using noncognitive variables by race. *Measurement and Evaluation in Counseling and Development, 19*, 177-184.

Tracey, T.J., & Sedlacek, W.E. (1987b). A comparison of White and Black student academic success using noncognitive variables: A LISREL analysis. *Research in Higher Education, 27*, 333-348.

Trippi, J., & Stewart, J.B. (1989). The relationship between self-appraisal variables and the college grade performance and persistence of Black freshmen. *Journal of College Student Development, 30*, 484-491.

Vollmer, F. (1986). The relationship between expectancy and achievement-How can it be explained? *British Journal of Educational Psychology, 56*, 64-74.

Wheat, J., Tunnell, J., & Munday, R. (1991). Predicting success in college algebra: Student attitudes and prior achievement. *College Student Journal, 25*, 240-244.

Wilhite, S.C. (1990). Self-efficacy, locus on control, self-assessment of memory ability, and study activities as predictors of college course achievement. *Journal of Educational Psychology, 82*, 696-700.

Zimmerman, R., Wise, L., & South, O. (1974). Early detection of final performance in an introductory course in general psychology. *Psychological Reports, 35*, 620-622.

Table 1

Correlations Between Predictors Variables (All Students)

	2	3	4	5	6	7	8	9
1. Achievement Expectancies	.14*	.06*	.02	.15*	.46*	.03*	.30*	.27*
2. High School Curriculum	---	.00	.04*	..06*	.19*	.12*	.23*	.11*
3. Financial Goals		---	.21*	.35*	.12*	-.04*	-.11*	-.11*
4. Social Goals			---	.36*	.10*	.00	-.14*	-.08*
5. Desire for Recognition				---	.19*	.00	-.04*	-.01
6. Academic Self-Concept					---	.05*	.38*	.34*
7. Parents Education						---	.14*	-.07*
8. ACT Composite Score							---	.29*
9. High School Class Rank								---

*p < .05

Table 2

Correlations Between Predictor Variables and Academic Performance Measures (All Students)

	GPA After 1 Year	GPA After 2 Years	GPA After 4 Years	Two-Year Persist.	Four-Year Persist.
Achievement Expectancies	.187*	.182*	.159*	.063*	.038*
High School Curriculum	.102*	.079*	.071*	.064*	.063*
Financial Goals	-.130*	-.176*	-.214*	-.065*	-.077*
Social Goals	-.047*	-.047*	-.035*	-.029*	-.044*
Desire for Recognition	-.015	-.026	-.037*	-.025*	-.036*
Academic Self-Concept	.282*	.265*	.217*	.114*	.101*
Parental Education	.078*	.037*	.032*	.049*	.044*
ACT Composite Score	.317*	.341*	.286*	.145*	.153*
H.S. Class Percentile	.475*	.472*	.457*	.227*	.213*

*$p < .05$

Table 3

Correlations Between Predictor Variables and Academic Performance Measures (Male Students)

	GPA After 1 Year	GPA After 2 Years	GPA After 4 Years	Two-Year Persist.	Four-Year Persist.
Achievement Expectancies	.175*	.161*	.148*	.074*	.056*
High School Curriculum	.096*	.071*	.074*	.041*	.063*
Financial Goals	-.064*	-.097*	-.128*	-.036*	-.039*
Social Goals	-.051*	-.068*	-.062*	-.037*	-.046*
Desire for Recognition	.001	-.029	-.045*	-.016	-.024
Academic Self-Concept	.292*	.259*	.228*	.128*	.119*
Parental Education	.081*	.039	.053*	.052*	.033
ACT Composite Score	.297*	.317*	.277*	.140*	.147*
H.S. Class Percentile	.476*	.433*	.408*	.279*	.259*

*$p < .05$

Table 4

Correlations Between Predictor Variables and Academic Performance Measures (Female Students)

	GPA After 1 Year	GPA After 2 Years	GPA After 4 Years	Two-Year Persist.	Four-Year Persist.
Achievement Expectancies	.203*	.206*	.185*	.054*	.025
High School Curriculum	.109*	.085*	.073*	.082*	.063*
Financial Goals	-.149*	-.198*	-.215*	-.079*	-.098*
Social Goals	-.054*	-.042*	-.032	-.026	-.046*
Desire for Recognition	-.027	-.019	-.025	-.031*	-.045*
Academic Self-Concept	.301*	.302*	.263*	.111*	.094*
Parental Education	.078*	.039*	.020	.048*	.053*
ACT Composite Score	.383*	.415*	.379*	.166*	.174*
H.S. Class Percentile	.459*	.485*	.464*	.179*	.170*

*$p < .05$

Table 5

Correlations Between Predictor Variables and Academic Performance Measures (Native American Students)

	GPA After 1 Year	GPA After 2 Years	GPA After 4 Years	Two-Year Persist.	Four-Year Persist.
Achievement Expectancies	.065	-.023	-.630	-.227	.071
High School Curriculum	-.223	.940*	.719	.050	.304
Financial Goals	.494	.153	.594	-.116	-.373
Social Goals	.477	.158	.429	-.256	-.295
Desire for Recognition	.637*	.150	.543	.000	-.066
Academic Self-Concept	.109	.371	-.382	-.150	-.086
Parental Education	-.294	-.781	-.879*	.232	.170
ACT Composite Score	.321	.461	-.386	.353	.629
H.S. Class Percentile	-.228	-.103	-.627	.068	.375

*$p < .05$

Table 6

Correlations Between Predictor Variables and Academic Performance Measures (Hispanic Students)

	GPA After 1 Year	GPA After 2 Years	GPA After 4 Years	Two-Year Persist.	Four-Year Persist.
Achievement Expectancies	.153*	.123	.113	.125	.108
High School Curriculum	.048	.118	-.030	.095	.168*
Financial Goals	-.103	-.172	-.185	-.039	-.039
Social Goals	-.062	-.128	-.042	-.030	-.106
Desire for Recognition	-.052	.026	-.036	-.040	-.054
Academic Self-Concept	.121	.191	.336*	.082	.093
Parental Education	.003	.101	.070	.060	.116
ACT Composite Score	.182*	.409*	.328*	.153*	.230*
H.S. Class Percentile	.386*	.351*	.227*	.221*	.141

*$p < .05$

Table 7

Correlations Between Predictor Variables and Academic Performance Measures (Asian Students)

	GPA After 1 Year	GPA After 2 Years	GPA After 4 Years	Two-Year Persist.	Four-Year Persist.
Achievement Expectancies	.133*	.073	.095	.079	.042
High School Curriculum	.031	-.063	.035	-.057	-.083
Financial Goals	-.019	.015	-.041	.022	-.045
Social Goals	-.062	-.166*	-.198*	.027	-.058
Desire for Recognition	-.049	-.038	-.063	.030	-.079
Academic Self-Concept	.188*	.223*	.232*	.117	.141*
Parental Education	-.034	.065	.132	-.110	-.055
ACT Composite Score	.218*	.265*	.164	.129	.144*
H.S. Class Percentile	.404*	.400*	.480*	.201*	.149*

*$p < .05$

Table 8

Correlations Between Predictor Variables and Academic Performance Measures (African-American Students)

	GPA After 1 Year	GPA After 2 Years	GPA After 4 Years	Two-Year Persist.	Four-Year Persist.
Achievement Expectancies	.027	.020	-.006	.078	.054
High School Curriculum	.074	.086	.077	.103*	.075
Financial Goals	-.026	.009	-.027	-.022	-.018
Social Goals	-.026	.069	.042	-.013	.033
Desire for Recognition	.004	-.068	-.066	.079	.042
Academic Self-Concept	.160*	.222*	.146*	.187*	.161*
Parental Education	.061	-.033	-.024	.127*	.113*
ACT Composite Score	.095*	.231*	.242*	.102*	.147*
H.S. Class Percentile	.219*	.250*	.293*	.107*	.144*

*$p < .05$

Table 9

Correlations Between Predictor Variables and Academic Performance Measures (White Students)

	GPA After 1 Year	GPA After 2 Years	GPA After 4 Years	Two-Year Persist.	Four-Year Persist.
Achievement Expectancies	.183*	.179*	.155*	.047*	.018
High School Curriculum	.084*	.064*	.056*	.048*	.045*
Financial Goals	-.118*	-.168*	-.208*	-.057*	-.064*
Social Goals	-.012	-.014	.000	-.009	-.021
Desire for Recognition	-.009	-.017	-.029	-.032*	-.036*
Academic Self-Concept	.283*	.260*	.208*	.096*	.078*
Parental Education	.072*	.028*	.026	.041*	.029*
ACT Composite Score	.280*	.294*	.232*	.101*	.090*
H.S. Class Percentile	.492*	.479*	.461*	.227*	.206*

*$p < .05$

Table 10

Summary of Stepwise Multiple Regression Analysis of Cumulative GPA After One Year Using the Entire Set of Predictor Variables (All Students and by Student Gender)

Step	Variable Entered	Model R-Square	F	p
All Students				
1	High School Class Percentile	.226	2136.70	.0001
2	ACT Composite Score	.260	341.32	.0001
3	Parental Education	.267	68.79	.0001
4	Academic Self-Concept	.272	49.85	.0001
5	Financial Goals	.278	58.69	.0001
6	Social Goals	.278	1.21	.2713
7	Achievement Expectancies	.278	0.44	.5057
8	Desire for Recognition	.278	0.02	.8813
9	High School Curriculum	.278	0.00	.9583
Male Students				
1	High School Class Percentile	.227	948.16	.0001
2	ACT Composite Score	.254	115.44	.0001
3	Academic Self-Concept	.263	41.69	.0001
4	Parental Education	.269	26.08	.0001
5	Financial Goals	.270	5.71	.0170
6	Achievement Expectancies	.271	0.66	.4153
7	High School Curriculum	.271	0.13	.7176
8	Social Goals	.271	0.06	.8119
9	Desire for Recognition	.271	0.00	.9983
Female Students				
1	High School Class Percentile	.211	1093.51	.0001
2	ACT Composite Score	.261	278.68	.0001
3	Parental Education	.267	35.68	.0001
4	Financial Goals	.273	30.12	.0001
5	Academic Self-Concept	.279	37.90	.0001
6	High School Curriculum	.279	0.50	.4797
7	Social Goals	.279	0.27	.6007
8	Achievement Expectancies	.279	0.27	.6001
9	Desire for Recognition	.279	0.04	.8517

Table 11

Summary of Stepwise Multiple Regression Analysis of Cumulative GPA After Two Years Using the Entire Set of Predictor Variables (All Students and by Student Gender)

Step	Variable Entered	Model R-Square	F	p
All Students				
1	High School Class Percentile	.223	1615.77	.0001
2	ACT Composite Score	.265	323.21	.0001
3	Financial Goals	.278	107.72	.0001
4	Academic Self-Concept	.284	45.96	.0001
5	Parental Education	.286	15.06	.0001
6	Social Goals	.287	5.13	.0236
7	High School Curriculum	.287	3.88	.0490
8	Desire for Recognition	.287	1.78	.1820
9	Achievement Expectancies	.288	0.56	.4531
Male Students				
1	High School Class Percentile	.188	564.20	.0001
2	ACT Composite Score	.227	124.01	.0001
3	Academic Self-Concept	.232	15.61	.0001
4	Financial Goals	.237	14.44	.0001
5	Parental Education	.238	5.84	.0157
6	Achievement Expectancies	.239	0.79	.3737
7	High School Curriculum	.239	0.21	.6430
8	Social Goals	.239	0.06	.8098
9	Desire for Recognition	.239	0.03	.8620
Female Students				
1	High School Class Percentile	.235	984.30	.0001
2	ACT Composite Score	.293	264.97	.0001
3	Financial Goals	.310	77.63	.0001
4	Academic Self-Concept	.318	35.14	.0001
5	Parental Education	.319	7.54	.0061
6	High School Curriculum	.321	6.53	.0107
7	Social Goals	.322	6.64	.0100
8	Desire for Recognition	.323	3.13	.0768
9	Achievement Expectancies	.323	0.41	.5236

Table 12

Summary of Stepwise Multiple Regression Analysis of Cumulative GPA After Four Years Using the Entire Set of Predictor Variables (All Students and by Student Gender)

Step	Variable Entered	Model R-Square	F	p
All Students				
1	High School Class Percentile	.208	1242.63	.0001
2	Financial Goals	.237	179.18	.0001
3	ACT Composite Score	.257	127.30	.0001
4	Parental Education	.260	16.46	.0001
5	Academic Self-Concept	.262	14.63	.0001
6	Social Goals	.264	8.92	.0028
7	Desire for Recognition	.264	1.51	.2198
8	High School Curriculum	.264	0.80	.3698
9	Achievement Expectancies	.264	0.23	.6334
Male Students				
1	High School Class Percentile	.167	404.97	.0001
2	ACT Composite Score	.192	62.36	.0001
3	Financial Goals	.199	19.06	.0001
4	Academic Self-Concept	.204	12.16	.0005
5	Parental Education	.207	8.13	.0044
6	Achievement Expectancies	.207	0.19	.6668
7	High School Curriculum	.207	0.14	.7053
8	Desire for Recognition	.207	0.04	.8490
9	Social Goals	.207	0.03	.8661
Female Students				
1	High School Class Percentile	.216	739.76	.0001
2	ACT Composite Score	.263	172.30	.0001
3	Financial Goals	.287	90.39	.0001
4	Academic Self-Concept	.290	12.27	.0005
5	Social Goals	.292	6.36	.0117
6	Parental Education	.293	5.10	.0240
7	High School Curriculum	.294	4.05	.0443
8	Desire for Recognition	.295	1.77	.1837
9	Achievement Expectancies	.295	0.83	.3621

Table 13

Summary of Stepwise Logistic Regression Analysis of Persistence for Two Years Using the Entire Set of Predictor Variables (All Students and by Student Gender)

Step	Variable Entered	Chi-Square	p
All Students			
1	High School Class Percentile	379.90	.0001
2	ACT Composite Score	51.67	.0001
3	Parental Education	20.27	.0001
4	Financial Goals	9.07	.0026
5	Academic Self-Concept	4.84	.0277
6	Achievement Expectancies	3.89	.0484
7	High School Curriculum	2.46	.1171
8	Desire for Recognition	1.12	.2896
9	Social Goals	0.18	.6691
Male Students			
1	High School Class Percentile	252.70	.0001
2	Parental Education	14.76	.0001
3	ACT Composite Score	8.97	.0027
4	Academic Self-Concept	2.11	.1460
5	Desire for Recognition	1.34	.2462
6	Financial Goals	0.66	.4170
7	Achievement Expectancies	0.63	.4276
8	High School Curriculum	0.06	.8074
9	Social Goals	0.00	.9866
Female Students			
1	High School Class Percentile	131.60	.0001
2	ACT Composite Score	46.65	.0001
3	Financial Goals	10.49	.0012
4	Parental Education	7.73	.0054
5	High School Curriculum	5.48	.0193
6	Academic Self-Concept	2.38	.1226
7	Achievement Expectancies	4.06	.0440
8	Desire for Recognition	0.83	.3609
9	Social Goals	0.35	.5548

Table 14

Summary of Stepwise Logistic Regression Analysis of Persistence for Four Years Using the Entire Set of Predictor Variables (All Students and by Student Gender)

Step	Variable Entered	Chi-Square	p
All Students			
1	High School Class Percentile	333.40	.0001
2	ACT Composite Score	69.91	.0001
3	Financial Goals	17.30	.0001
4	Parental Education	13.87	.0002
5	Achievement Expectancies	11.90	.0006
6	Academic Self-Concept	5.08	.0242
7	High School Curriculum	2.90	.0886
8	Desire for Recognition	1.52	.2177
9	Social Goals	0.34	.5579
Male Students			
1	High School Class Percentile	218.90	.0001
2	ACT Composite Score	19.51	.0001
3	Parental Education	4.15	.0416
4	Achievement Expectancies	2.32	.1278
5	Academic Self-Concept	2.26	.1329
6	High School Curriculum	1.55	.2134
7	Desire for Recognition	1.38	.2401
8	Financial Goals	0.56	.4540
9	Social Goals	0.22	.6358
Female Students			
1	ACT Composite Score	124.70	.0001
2	High School Class Percentile	52.22	.0001
3	Financial Goals	19.18	.0001
4	Achievement Expectancies	11.09	.0009
5	Parental Education	8.65	.0033
6	Academic Self-Concept	3.33	.0681
7	High School Curriculum	1.20	.2731
8	Desire for Recognition	0.94	.3318
9	Social Goals	0.13	.7182

Table 15

Summary of Stepwise Multiple Regression Analysis of Cumulative GPA After One Year Using the Entire Set of Predictor Variables (All Students and by Student Ethnic Group)

Step	Variable Entered	Model R-Square	F	p
Hispanic Students				
1	High School Class Percentile	.149	30.06	.0001
2	Financial Goals	.156	1.55	.2145
3	Achievement Expectancies	.157	0.18	.6750
4	High School Curriculum	.158	0.13	.7213
5	Parental Education	.158	0.07	.7964
6	Academic Self-Concept	.158	0.02	.8773
7	Social Goals	.159	0.02	.8788
8	Desire for Recognition	.159	0.00	.9562
9	ACT Composite Score	.159	0.00	.9591
Asian Students				
1	High School Class Percentile	.163	44.20	.0001
2	ACT Composite Score	.176	3.50	.0628
3	Desire for Recognition	.181	1.35	.2462
4	Financial Goals	.185	1.30	.2547
5	Social Goals	.188	0.62	.4317
6	Parental Education	.189	0.22	.6401
7	High School Curriculum	.189	0.24	.6272
8	Academic Self-Concept	.190	0.20	.6577
9	Achievement Expectancies	.190	0.00	.9792
African-American Students				
1	High School Class Percentile	.048	22.76	.0001
2	Academic Self-Concept	.062	6.38	.0119
3	Parental Education	.065	1.89	.1702
4	Social Goals	.068	1.17	.2799
5	High School Curriculum	.070	1.06	.3030
6	Achievement Expectancies	.071	0.64	.4231
7	Financial Goals	.072	0.10	.7505
8	ACT Composite Score	.072	0.02	.8818
9	Desire for Recognition	.072	0.01	.9085
White Students				
1	High School Class Percentile	.242	2059.93	.0001
2	ACT Composite Score	.268	224.08	.0001
3	Parental Education	.277	80.45	.0001
4	Academic Self-Concept	.282	48.81	.0001
5	Financial Goals	.288	52.10	.0001
6	Social Goals	.288	4.35	.0372
7	High School Curriculum	.288	0.98	.3231
8	Achievement Expectancies	.289	0.87	.3509
9	Desire for Recognition	.289	0.36	.5512

Table 16

Summary of Stepwise Multiple Regression Analysis of Cumulative GPA After Two Years Using the Entire Set of Predictor Variables (All Students and by Student Ethnic Group)

Step	Variable Entered	Model R-Square	F	p
Hispanic Students				
1	ACT Composite Score	.167	24.24	.0001
2	High School Class Percentile	.192	3.77	.0546
3	Financial Goals	.208	2.41	.1235
4	Achievement Expectancies	.212	0.60	.4400
5	Desire for Recognition	.217	0.69	.4094
6	Social Goals	.219	0.27	.6053
7	Academic Self-Concept	.219	0.08	.7796
8	Parental Education	.220	0.06	.8117
9	High School Curriculum	.220	0.02	.8819
Asian Students				
1	High School Class Percentile	.160	30.96	.0001
2	ACT Composite Score	.180	4.11	.0443
3	High School Curriculum	.191	2.09	.1500
4	Parental Education	.201	2.02	.1575
5	Achievement Expectancies	.208	1.41	.2368
6	Academic Self-Concept	.217	1.88	.1720
7	Social Goals	.225	1.60	.2083
8	Financial Goals	.236	2.22	.1381
9	Desire for Recognition	.244	1.68	.1965
African-American Students				
1	High School Class Percentile	.062	17.55	.0001
2	ACT Composite Score	.098	10.47	.0014
3	Academic Self-Concept	.111	3.82	.0516
4	Achievement Expectancies	.124	3.95	.0480
5	Desire for Recognition	.133	2.63	.1063
6	Social Goals	.141	2.21	.1383
7	Financial Goals	.142	0.36	.5493
8	High School Curriculum	.142	0.11	.7442
9	Parental Education	.142	0.10	.7554
White Students				
1	High School Class Percentile	.229	1509.74	.0001
2	ACT Composite Score	.258	192.24	.0001
3	Financial Goals	.273	108.94	.0001
4	Academic Self-Concept	.280	44.31	.0001
5	Parental Education	.282	16.64	.0001
6	Social Goals	.283	7.86	.0051
7	High School Curriculum	.284	4.32	.0378
8	Desire for Recognition	.284	3.00	.0831
9	Achievement Expectancies	.284	0.00	.9721

Table 17

Summary of Stepwise Multiple Regression Analysis of Cumulative GPA After Four Years Using the Entire Set of Predictor Variables (All Students and by Student Ethnic Group)

Step	Variable Entered	Model R-Square	F	p
Hispanic Students				
1	Academic Self-Concept	.113	11.42	.0011
2	Financial Goals	.158	4.74	.0322
3	ACT Composite Score	.172	1.55	.2170
4	High School Curriculum	.184	1.32	.2543
5	Achievement Expectancies	.188	0.34	.5603
6	Social Goals	.191	0.32	.5704
7	Desire for Recognition	.192	0.12	.7314
8	Parental Education	.192	0.01	.9378
9	High School Class Percentile	.192	0.00	.9585
Asian Students				
1	High School Class Percentile	.230	36.77	.0001
2	Parental Education	.263	5.50	.0206
3	Social Goals	.275	1.99	.1613
4	Academic Self-Concept	.282	1.11	.2947
5	Achievement Expectancies	.287	0.86	.3560
6	ACT Composite Score	.290	0.44	.5080
7	High School Curriculum	.291	0.25	.6158
8	Financial Goals	.292	0.15	.6947
9	Desire for Recognition	.293	0.06	.8120
African-American Students				
1	High School Class Percentile	.086	17.14	.0001
2	ACT Composite Score	.126	8.36	.0043
3	Achievement Expectancies	.137	2.43	.1211
4	Desire for Recognition	.145	1.55	.2153
5	Academic Self-Concept	.150	1.15	.2847
6	Social Goals	.154	0.76	.3846
7	High School Curriculum	.154	0.05	.8267
8	Parental Education	.154	0.00	.9712
9	Financial Goals	.154	0.00	.9965
White Students				
1	High School Class Percentile	.212	1160.15	.0001
2	Financial Goals	.242	164.57	.0001
3	ACT Composite Score	.251	55.64	.0001
4	Social Goals	.255	21.14	.0001
5	Parental Education	.258	15.78	.0001
6	Academic Self-Concept	.259	10.14	.0015
7	Desire for Recognition	.260	2.01	.1564
8	High School Curriculum	.260	1.56	.2115
9	Achievement Expectancies	.260	0.11	.7451

Table 18

Summary of Stepwise Logistic Regression Analysis of Persistence for Two Years Using the Entire Set of Predictor Variables (All Students and by Student Ethnic Group)

Step	Variable Entered	Chi-Square	p
Hispanic Students			
1	High School Class Percentile	8.52	.0035
2	High School Curriculum	0.62	.4317
3	ACT Composite Score	0.41	.5206
4	Desire for Recognition	0.24	.6253
5	Achievement Expectancies	0.29	.5881
6	Academic Self-Concept	0.21	.6451
7	Parental Education	0.18	.6700
8	Social Goals	0.03	.8685
9	Financial Goals	0.00	.9561
Asian Students			
1	High School Class Percentile	9.38	.0022
2	Parental Education	2.26	.1329
3	ACT Composite Score	2.51	.1128
4	Social Goals	1.27	.2596
5	High School Curriculum	1.37	.2425
6	Financial Goals	0.23	.6325
7	Desire for Recognition	0.14	.7088
8	Academic Self-Concept	0.03	.8701
9	Achievement Expectancies	0.02	.8907
African-American Students			
1	Academic Self-Concept	15.85	.0001
2	Parental Education	4.83	.0280
3	High School Class Percentile	3.15	.0761
4	High School Curriculum	1.43	.2318
5	Financial Goals	0.95	.3303
6	Desire for Recognition	2.24	.1345
7	Social Goals	0.97	.3255
8	Achievement Expectancies	0.04	.8503
9	ACT Composite Score	0.02	.8922
White Students			
1	High School Class Percentile	334.60	.0001
2	Parental Education	24.75	.0001
3	ACT Composite Score	11.47	.0007
4	Financial Goals	7.17	.0074
5	Achievement Expectancies	3.06	.0804
6	Academic Self-Concept	4.13	.0422
7	Desire for Recognition	1.85	.1732
8	Social Goals	1.59	.2077
9	High School Curriculum	0.92	.3363

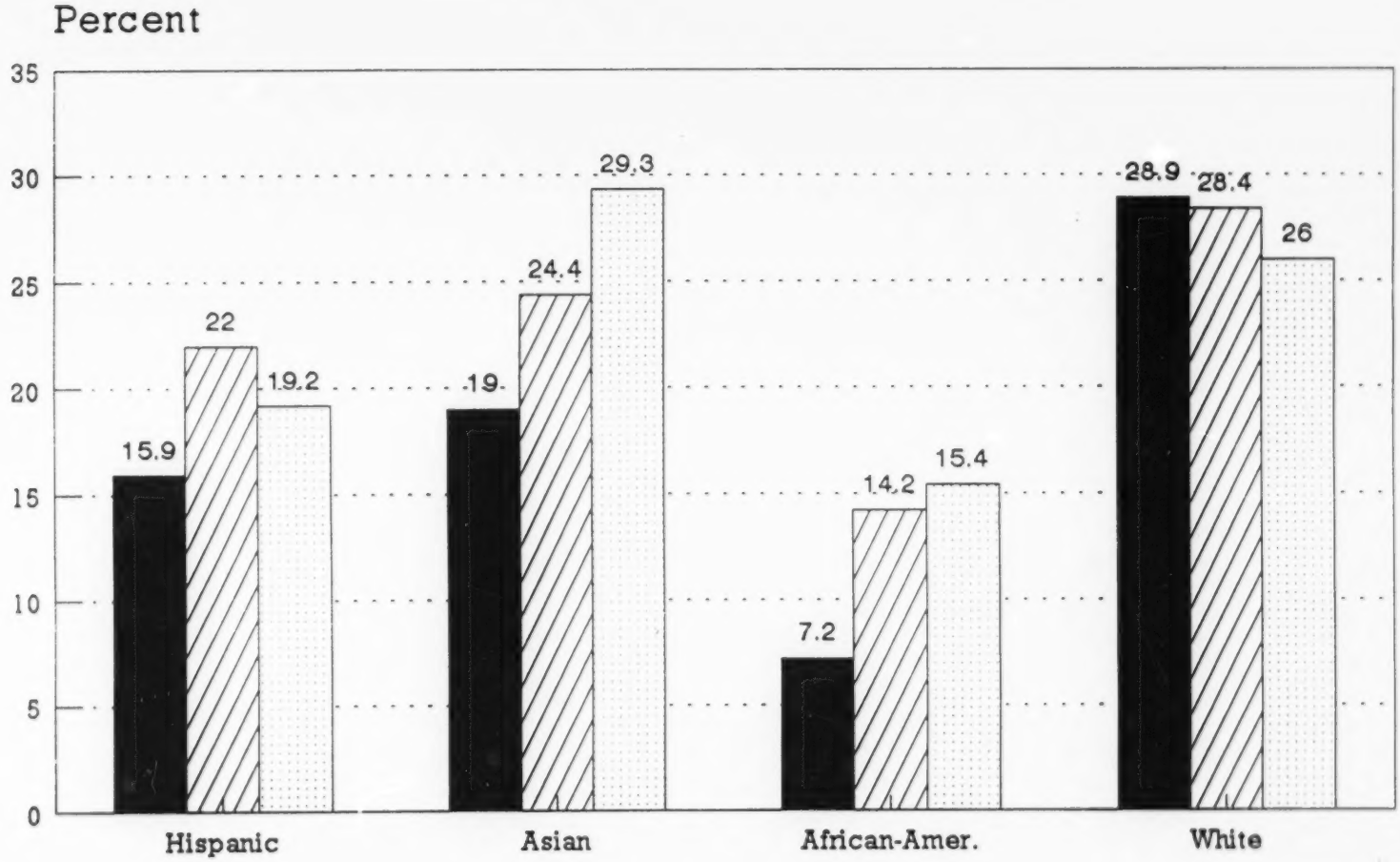
Table 19

Summary of Stepwise Logistic Regression Analysis of Persistence for Four Years Using the Entire Set of Predictor Variables (All Students and by Student Ethnic Group)

Step	Variable Entered	Chi-Square	p
Hispanic Students			
1	ACT Composite Score	9.20	.0024
2	High School Curriculum	2.43	.1187
3	Social Goals	0.92	.3371
4	Parental Education	0.23	.6310
5	Academic Self-Concept	0.26	.6132
6	High School Class Percentile	0.32	.5696
7	Achievement Expectancies	0.10	.7462
8	Desire for Recognition	0.10	.7546
9	Financial Goals	0.03	.8642
Asian Students			
1	High School Class Percentile	5.13	.0235
2	ACT Composite Score	2.72	.0990
3	High School Curriculum	2.59	.1072
4	Academic Self-Concept	1.28	.2582
5	Desire for Recognition	2.35	.1252
6	Parental Education	0.66	.4162
7	Achievement Expectancies	0.35	.5550
8	Financial Goals	0.22	.6406
9	Social Goals	0.18	.6727
African-American Students			
1	Academic Self-Concept	11.70	.0006
2	High School Class Percentile	5.69	.0171
3	Parental Education	5.44	.0197
4	ACT Composite Score	2.14	.1432
5	Financial Goals	0.52	.4724
6	Social Goals	0.41	.5238
7	High School Curriculum	0.28	.5935
8	Desire for Recognition	0.13	.7229
9	Achievement Expectancies	0.12	.7345
White Students			
1	High School Class Percentile	275.90	.0001
2	Parental Education	15.17	.0001
3	Financial Goals	11.90	.0006
4	Achievement Expectancies	8.70	.0032
5	ACT Composite Score	12.38	.0004
6	Academic Self-Concept	3.05	.0808
7	High School Curriculum	1.80	.1792
8	Desire for Recognition	1.59	.2066
9	Social Goals	0.04	.8410

Figure 1

Percent of Variance in GPA Explained by the Overall Model



BEST COPY AVAILABLE